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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/214,277	03/01/1999	KENJI KAWADA	32-248P	8984

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EXAMINER

BALASUBRAMANIAN, VENKATARAMAN

ART UNIT	PAPER NUMBER
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1624

DATE MAILED: 12/17/2002

17

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/214,277

Applicant(s)

KAWADA ET AL.

Examiner

Venkataraman Balasubramanian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 28-37,40 and 45-54 is/are pending in the application.
- 4a) Of the above claim(s) 28-33,50 and 51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 34-37,40,45-49 and 52-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 16. 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Applicants' response, which included addition of new claims 55-56, along with a declaration from Masashi Deguchi, filed on 9/23/2002, is made of record.

However. Claims 55 and 56 will be renumbered as 53-54 as there were no claims 53-54 in the case when the last office action was made. Applicants are requested to acknowledge this so that appropriate correction could be made if necessary. In addition applicants should note that there are non-elected claims 28-33, 50-51, which were withdrawn from consideration, are also in the case

Claims 34-37, 40, 45-49, 52 and 53-54 are now pending.

In view of applicants' response, particularly the declaration showing unexpected/superior properties, the following 103 rejections made in the previous office based on H vs methyl analogy are obviated.

Claims 34-36 and 40-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goulding US 5,560,864.

Claims 34-36 and 40-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kam Ming Chan et al. US 4,594,465.

Claims 34-36 and 40-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurihara et al. US 5,494,605.

Claims 34-36 and 40-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiffenrath et al. US 5,487,845.

Claims 34-36 and 40-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. US 5,417,885.

Claims 34-36 and 40-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. GB 2,227,742.

Claims 34-36 and 40-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raynes et al. GB 198,743

Claims 34-36 and 40-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coates et al. GB 2,240,778

Claims 34-36 and 40-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. GB 2,200,912.

However, the following remains.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 34-37,40, 45-49 and 52-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Following reasons apply. Any claim not specifically rejected is rejected as being dependent on a rejected claim.

1. Recitation of the term "prodrug" in claims 34-37,40, 45-49 and 52 is deemed as indefinite. Prodrugs in general and as noted in specification, are compounds, which undergo in vivo hydrolysis to parent active drugs. In that sense recitation of prodrug is acceptable. However, the definition of various R, groups include such groups, namely esters, amides, alkoxycaronyl etc. and therefore it is not clear what is the difference between these variable groups and the prodrug groups.

This rejection is same as made in the previous office action except that the newly added claims are also rejected herein.

Applicants' argument to overcome this rejection is not persuasive.

First of all, the issue is not what a prodrug is but how would one distinguish a prodrug group from the groups already present in the molecule. A dual definition of the same group will create ambiguity thereby rendering the claims indefinite.

Secondly, applicants' declaration asserts that a subtle change in the structure such as replacing Hydrogen with methyl results in unexpected /superior properties which would be hard to reconcile with prodrug modification on anywhere on the compound of formula shown in the instant claims. It would raise an issue of scope of enablement.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 34-36,40, and 45-49 are rejected under 35 U.S.C. 102(b) as being anticipated by Coates et al. WO 93/22397.

Coates et al teaches several structurally related compounds for the use in liquid crystal system. See formula 1 and note the definition of various variable groups on

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pages 1-2. Particularly note, when  $Z^1$ ,  $Z^2$  are single bonds,  $A^1$  and  $A^2$  are phenylene, compounds taught by Coates include those claimed in the instant claims. See pages 3 through col. 63 for detail description of the invention. See examples on pages. 65–67 for compounds made and diagram 3 on page 79 for the process.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 34-36, 40, 45-49, are rejected under 35 U.S.C. 103(a) as being unpatentable over Coates et al. WO 93/22397.

Teachings of Coates et al. as discussed in the above 102 rejection.

Instant claims require variously substituted X-Y groups on the terphenyl and various substituents on the phenyl ring of the terphenyl

However, Coates et al. teaches the equivalency of the exemplified substituents with that defined in the definition of various variable groups on terphenyl ring. See formula I on and note the definition of various variable groups pages 1-2. Thus it would have been obvious to one having ordinary skill in the art at the time of the invention was made to make compounds variously substituted in terphenyl ring and the as permitted by the reference and expect resulting compounds (instant compounds) to possess the uses taught by the art in view of the equivalency teaching outline above.

References cited in the Information Disclosure Statement (paper # 16) are made of record except Japanese patents for which there were no translation provided. In view of large number of references, prior art rejections are solely based on the earlier search and Information Disclosure Statement provide by the applicants.

### ***Conclusion***

Any inquiry concerning this communication from the examiner should be addressed to Venkataraman Balasubramanian (Bala) whose telephone number is (703) 305-1674. The examiner can normally be reached on Monday through Thursday from

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8.00 AM to 6.00 PM. The Supervisory Patent Examiner (SPE) of the art unit 1624 is Mukund Shah whose telephone number is (703) 308-4716.

The fax phone number for the organization where this application or proceeding is assigned (703) 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

*V. Balasubramanian*  
Venkataraman Balasubramanian

12/14/2002